July 1, 2003

Proposal for Use of Fire Protection as an Example Program To Discuss Programmatic Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC)

This note documents a proposal for moving forward with the NRC's stakeholders regarding programmatic ITAAC. This note provides some background discussion regarding the issue and a proposal for using the fire protection program as an example program for discussing the issues associated with programmatic ITAAC. It is expected that this proposal in the short term would be discussed in a public meeting with the Nuclear Energy Institute (NEI) and in the longer term would be used as a basis for discussion during a workshop with other stakeholders.

Background

Attachment 1 to this note describes the issue and was discussed during a meeting with NEI on May 22, 2003. An action item from that meeting was to identify an example program listed in footnote 2 of Attachment 1 to be used to develop guidance to implement the Commission's direction contained in the staff requirements memorandum (SRM) regarding programmatic ITAAC. According to the action item, the NRC and NEI would then independently develop guidelines for the level of programmatic information that would be needed in order to issue a combined license (COL) without ITAAC for that program. The information would be provided to each organization at least 10 days in advance of a public meeting to discuss the issue. Subsequent to the meeting the NRC staff identified fire protection as the example program.

Proposal

The staff proposes to use the fire protection review for the AP600 standard nuclear reactor design and the Callaway Plant as a starting point to develop guidelines for the level of programmatic information that would be needed in order to issue a COL without ITAAC for that program. The staff chose the AP600 because it represents the most current review for a standard design that has been certified in accordance with 10 CFR Part 52. The staff chose the Callaway Plant because it represents a plant that was relatively recently licensed in accordance with 10 CFR Part 50 and its final safety analysis report (FSAR) contains information for the fire protection program that is not contained in the AP600 analogous document (i.e., AP600 design control document (DCD)). The AP600 DCD does not contain this information because it identifies many fire protection program issues as the responsibility of the COL applicant.

Callaway was also chosen because it represents a Standardized Nuclear Unit Power Plant System (SNUPPS) design. The Callaway Plant FSAR was submitted to the NRC in support of the application by Union Electric for a Class 103 license to operate a nuclear power facility. The FSAR was originally submitted in two parts, the SNUPPS Standard Plant and the Callaway Site Addendum. Some of the chapters common to both reports are currently being combined into one report, the Callaway - Standard Plant. However, in the fire protection area (Section 9.5.1) a SNUPPS Standard Plant Section and a Callaway Site Addendum still exists. Because of similarities to the 10 CFR Part 52 licensing process the staff believes that the Callaway Site Addendum is particularly useful for addressing expectations of a COL applicant.

The staff believes that the following information should be provided for the fire protection program at the COL stage in order to issue a COL without ITAAC for that program:

(1) The information in the referenced DCD or the applicable analogous information that addresses the COL action items contained in Attachment 2 to this note for the AP600.

(2) Fire protection program information at a similar level of detail as that contained in Section 9.5.1 of the SNUPPS Standard Plant FSAR (and the applicable appendices) for the Callaway Plant.

(3) Fire protection program information at a similar level of detail as that contained in Section 9.5.1 (and the applicable appendices) of the Site Addendum portion of the FSAR for the Callaway Plant.

(4) Fire protection program information similar to that contained in the following Callaway Plant fire protection program procedures:

- APA-ZZ-00700, “Fire Protection Program”
- APA-ZZ-00701, “Control of Impairments of Fire Protections Systems and Components”
- APA-ZZ-00703, “Fire Protection Operability Criteria and Surveillance Requirements”
- APA-ZZ-0741, “Control of Combustible Materials”
- APA-ZZ-00742, “Control of Ignition Sources”
- APA-ZZ-00743, “Fire Team Organization and Duties”
- EDP-ZZ-04044, “Fire Protection Reviews”

(5) Fire protection implementing procedures unique to the fire protection program. Examples include, but are not limited to, procedures similar to the following Callaway Plant procedures:

- EIP-ZZ-00226, “Fire Response Procedure for the Callaway Plant”
- FPP-ZZ-0XXXX, Series of Procedures, Pre-Fire Strategy Procedures
- FPP-ZZ-00009, “Fire Protection Training Program”
- HTP-ZZ-05006, “Fire Involving Radioactive Material or Entry into the RCA”
- SDP-KC-00002, “Fire Door Position Verification”
- MSM-ZZ-FG002, “Fire Damper Inspection and Drop Test”
- QSP-ZZ-65045, “Fire Barrier Penetration Seal Visual Inspection”

(6) In addition, the staff expects that the COL applicant will have a license condition similar to that of Callaway’s license condition 2.C(5) for the fire protection program found in Attachment 3 of this note.

Each of these 6 items are discussed in more detail below. To facilitate discussions regarding this proposal key documents discussed below will be made available on the NRC’s website prior to the next public meeting with NEI. The documents will be provided under the COL discussion found on the NRC’s public website at the following link: http://www.nrc.gov/reactors/new-licensing/licensing-process.html

AP600 COL Action Items

COL applicants and licensees who reference the certified AP600 standard design will be required to satisfy the requirements and commitments in the DCD, which is the controlling document used in the certification of the AP600 design. Also, certain requirements and commitments are identified in the AP600 DCD as "Combined License Information Items," and in NUREG-1512, "Final Safety Evaluation Report Related to the Certification of the AP600 Standard Design" September 1998, as "COL Action Items." These COL action items relate to programs, procedures, and issues that are outside of the scope of the certified design review. These COL action items do not establish requirements; rather, they identify an acceptable set of information for inclusion in a plant-specific DCD. An applicant for a COL should address each of these items in its application. It may deviate from or omit these items, provided that the deviation or omission is identified and justified in the plant-specific DCD. Attachment 2 to this note contains the COL action items related to the fire protection program for the AP600 design.

The staff will review the COL information against the requirements that are applicable and in effect at the time of the COL application. It should be noted that, similar to what was done for the design certification reviews, any changes to the applicable regulations made from the time of the COL application to COL issuance (if the Commission deems issuing a COL appropriate) would have to be reflected in the application and the staff's review.

If a COL application were received today the staff would review the information in accordance with the requirements contained in 10 CFR 50.48, "Fire protection," and GDC 3, "Fire protection," of Appendix A to 10 CFR Part 50. Conformance with the Standard Review Plan (SRP) is addressed in 10 CFR 50.34(g) which specifies that applications include an evaluation of the facility against the SRP. The fire protection guidance for nuclear power plants specified in the SRP is provided in branch technical position (BTP) Chemical and Mechanical Engineering Branch (CMEB) 9.5-1, "Guidelines for Fire Protection for Nuclear Power Plants," Revision 2, July 1981. In addition to the guidance specified in the BTP, the staff has specified that advanced light-water reactors shall provide an enhanced level of fire protection to ensure that safe shutdown can be achieved assuming all equipment in any one fire area is rendered inoperative as a result of fire damage, and that reentry into the fire area by plant personnel for repairs or operator interactions is not possible. The staff's technical positions relative to enhanced level of fire protection for advanced light-water reactors are contained in the following documents:

- SECY-90-016, "Evolutionary Light Water Reactor (LWR) Certification Issues and Their Relationship to Current Regulatory Requirements," January 12, 1990, and SRM dated June 26, 1990,

- SECY-93-087,"Policy, Technical, and Licensing Issues Pertaining to Evolutionary and Advanced Light-Water Reactor Designs," April 12, 1993 and SRM dated July 21, 1993, and

- Section 9.3 of NUREG 1242, "NRC Review of Electric Power Research Institute's Advanced Light Water Reactor Utility Requirements Document," August 1992.

In addition, applicable National Fire Protection Association (NFPA) codes, standards and recommended practices will be used to aid the staff's review. The staff also believes that

Regulatory Guide 1.189, “Fire Protection for Operating Nuclear Power Plants,” April 2001, will provide useful guidance for its review of a COL application.

With the exception of Regulatory Guide 1.189, which was published after the AP600 FSER was issued, the AP600 was reviewed against the requirements and guidance provided in the previous paragraph. The AP600 fire protection program can be found in the AP600 DCD Section 9.5.1 and the staff’s safety evaluation can be found in NUREG 1512 Section 9.5.1. Therefore, the staff will provide the following information on the NRC’s public website prior to the next public meeting with NEI to support discussion of this proposal:

- AP600 DCD Section 9.5.1
- NUREG 1512 Section 9.5.1
- Regulatory Guide 1.189

SNUPP Standard Plant FSAR for the Callaway Plant

The Standard Plant FSAR provides information analogous to the AP600 DCD. The staff believes that the Standard Plant FSAR information can place in context the information that is contained in the Site Addendum portion of the FSAR. Therefore, the staff will provide the following information on the NRC’s public website prior to the next public meeting with NEI to support discussion of this proposal:

- Callaway FSAR Standard Plant Section 9.5.1, “Fire Protection System”
- Callaway FSAR Standard Plant Appendix 9.5A, “Design Comparison to Regulatory Positions of Regulatory Guide 1.120, Revision 1, Dated November 1977, Titled - Fire Protection Guidelines for Nuclear Power Plants"
- Callaway FSAR Standard Plant Appendix 9.5B, “Fire Hazards Analysis”

Site Addendum Portion of the FSAR for the Callaway Plant

The staff believes that the Site Addendum portion of the FSAR for the Callaway Plant provides useful guidance for a COL application. For example, Site Addendum Sections 9.5.1.5, “Personnel Qualification and Training,” 9.5.1.8, “Callaway Plant Fire Brigade,” 9.5.1.9, “Fire Fighting Procedures,” and 9.5.1.12, “Administrative Controls,” provide examples of the level of detail that the staff would expect in a COL application for these areas. Therefore, the staff will provide the following information on the NRC’s public website prior to the next public meeting with NEI to support discussion of this proposal:

- Callaway FSAR Site Addendum Section 9.5-1, “Fire Protection System”
- Callaway FSAR Site Addendum Appendix 9.5A, “Fire Protection Evaluation”
- Callaway FSAR Site Addendum Appendix 9.5B, “Fire Hazards Analysis for Site Facilities Outside the Standard Power Block”
- Callaway FSAR Site Addendum Appendix 9.5E, “Fire Protection Evaluation”

Fire Protection Program and Implementing Procedures

The NRC staff is considering whether or not the type of information contained in items 4 and 5 above should be supplied at the time of the COL application so that the NRC can make a

decision before the COL is granted regarding the need for ITAAC for the fire protection program. Callaway's procedure APA-ZZ-00700, "Fire Protection Program" contains an Appendix 2 which lists the following as fire protection program documents:

- FSAR, Standard Plant, Section 9.5.1, 9.5.2, 9.5.3, and Appendices 9.5A through E
- FSAR Site Addendum, Sections, 9.5.1, 9.5.2, and Appendices 9.5A through E
- The fire protection program as described in the Safety Evaluation Report (SER) through Supplement 4
- APA-ZZ-00701, "Control of Impairments of Fire Protections Systems and Components"
- APA-ZZ-00703, "Fire Protection Operability Criteria and Surveillance Requirements"
- APA-ZZ-0741, "Control of Combustible Materials"
- APA-ZZ-00742, "Control of Ignition Sources"
- APA-ZZ-00743, "Fire Team Organization and Duties"
- EDP-ZZ-04044, "Fire Protection Reviews"

The staff believes that information similar to that contained in the procedures that are referenced in Appendix 2 to APA-ZZ-0700 and APA-ZZ-0700 itself should be furnished for staff review at the time of the COL application. The staff will provide these procedures on the NRC's public website prior to the next public meeting with NEI to support discussion of this proposal.

In addition to these key procedures that are an integral part of Callaway's fire protection program, there are other procedures that are unique to Callaway's fire protection program. Procedures that are referenced by the key fire protection program procedures include the following:

- EIP-ZZ-00226, "Fire Response Procedure for the Callaway Plant"
- FPP-ZZ-0XXXX, Series of Procedures, Pre-Fire Strategy Procedures
- FPP-ZZ-00009, "Fire Protection Training Program"
- HTP-ZZ-05006, "Fire Involving Radioactive Material or Entry into the RCA"
- SDP-KC-00002, "Fire Door Position Verification"
- MSM-ZZ-FG002, "Fire Damper Inspection and Drop Test"
- QSP-ZZ-65045, "Fire Barrier Penetration Seal Visual Inspection"

The staff is considering whether these "secondary" procedures should be furnished for review at the time of the COL application so that the NRC can make a decision before the COL is granted regarding the need for ITAAC for the fire protection program. The staff does not believe at this point in time it is necessary to provide these procedures on its public website to support discussion of this portion of the proposal.

COL License Condition

Generic Letter 86-10, "Implementation of Fire Protection Requirements," and Generic Letter 88-12, "Removal of Fire Protection Requirements from Technical Specifications," discuss the regulatory treatment of the fire protection program. Generic Letter 86-10 requested that licensees incorporate the NRC-approved Fire Protection Program in their FSARs. Generic Letter 86-10 encouraged licensees, upon completion of this program, to apply for an amendment to their operating licenses (1) to replace current license conditions regarding fire protection with a new standard condition and (2) to remove unnecessary fire protection

Technical Specifications (TS). Generic Letter 88-12 provided additional information in this area based on experience with implementation of Generic Letter 86-10 for new operating licenses.

Generic Letter 86-10 proposed the following standard fire protection license condition:

> (Name of Licensee) shall implement and maintain in effect all provisions of the approved fire protection program as described in the Final Safety Analysis Report for the facility (or as described in submittals dated _____) and as approved in the SER dated _____(and Supplements dated _____) subject to the following provision:
>
> The licensee may make changes to the approved fire protection program without prior approval of the Commission only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.

The applicable license condition for Callaway is contained in license condition 2.C(5)(c) and 2.C(5)(d). These license conditions can be found in attachment 3 to this note.

SECY-00-0092, "Combined License Review Process," dated April 20, 2000, contains a proposed generic COL. The Commission approved the form and content of this generic COL in a SRM dated September 5, 2000. However, the proposed generic COL did not contain a similar fire protection program license condition as that contained in Callaway's license or discussed in Generic Letter 86-10. The staff believes that a COL should have a license condition for the fire protection program. The staff would like to discuss with its stakeholders the merits of such a license condition.

Background Material for Programmatic Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC)

Description of the Issue

In SECY-02-0067, "Inspections, Tests, Analyses, and Acceptance Criteria for Operational Programs (Programmatic ITAAC)," the staff requested Commission approval for its position that combined licenses (COLs) for a nuclear power plant submitted in accordance with the requirements of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 52 Subpart C contain ITAAC for operational programs required by regulations such as training and emergency planning (ADAMS Accession Number ML020700641). The Commission provided its response in a September 11, 2002, staff requirements memorandum (ADAMS Accession Number ML022540755).

Discussion Topics

The staff would like to discuss a response to the staff requirements memorandum (SRM) including a discussion of the following option. A draft standard review plan (SRP) Section 14.3 Appendix E, "Programmatic ITAAC" would be developed for guidance. The staff is considering categorizing the 14 programs that it listed in SECY-02-0067 in the following manner as part of this guidance:

Category A: Programmatic ITAAC are required. A program that falls into this category is emergency planning.

Category B: Programmatic ITAAC are not necessary because hardware-related ITAAC address the results to which the program is directed. Examples of programs that may fall into this category are equipment qualification, quality assurance, and containment leak rate testing.

Category C: An ITAAC for a program or elements of the program is not necessary because the program and its implementation can be fully described[1] in the application and found to be acceptable at the COL stage.[2]

Category D: An ITAAC for a program or elements of the program is necessary because the program and its implementation cannot be fully described[1] in the application. That is, the COL applicant cannot provide the necessary and sufficient programmatic information for approval of the COL without ITAAC.[2]

Category E: An ITAAC for a program is not necessary because ITAAC will be dispositioned prior to fuel load and the program is not required to be implemented until after fuel load. Examples of programs that may fall into this category include the inservice inspection and inservice testing programs, and the maintenance rule program.

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[1] A principal issue for these categories is what constitutes a "fully described" program.

[2] The following programs may fall into Category C or D depending on the information provided at the time of the COL: fire protection, radiation protection, security, fitness for duty, training, access authorization, reportability, licensed operator training.

AP600 COL Action Items

Westinghouse included a summary of COL action items in design control document (DCD) Table 1.8-2, and provided an explanation of the items in the applicable sections of the DCD. The staff identified a number of COL action items that resulted from its review throughout NUREG-1512, "Final Safety Evaluation Report Related to Certification of the AP600 Standard Design," September 1998. Each COL action item was assigned a unique identifying number. The number identifies the section in NUREG-1512 where the item is described. For example, COL Action Item 5.3.2-1 is discussed in Section 5.3.2 of NUREG-1512. A cross-reference of the COL Action Items identified in NUREG-1512 and those identified by Westinghouse in DCD Table 1.8-2 follows.

FSER Item	DCD Table 1.8-2	DCD Section	Description
9.5.1-1(a)	9.5-1	9.5.1.8	The COL applicant shall establish a fire protection program at the facility for the protection of structures, systems, and components important to safety, and the procedures, equipment and personnel required to implement the program.
9.5.1-1(b)	9.5-1	9.5.1.8, Tbl. 9.5.1-1	The implementation of the fire protection program prior to receiving fuel onsite for fuel storage areas, and for the entire unit prior to reactor startup is the responsibility of the COL applicant.
9.5.1-1(c)	9.5-1	9.5.1.8, Tbl. 9.5.1-1	The establishment of administrative controls to maintain the performance of the fire protection systems and personnel is the responsibility of the COL applicant.
9.5.1-1(d)	9.5-1	9.5.1.8, Tbl. 9.5.1-1	The establishment of a site fire brigade trained and equipped for fire fighting to ensure adequate manual fire fighting capability for all plant areas containing structures, systems, or components important to safety is the responsibility of the COL applicant.
9.5.1-1(e)	9.5-1	9.5.1.8, Tbl. 9.5.1-1	The establishment of a quality assurance program to ensure that the guidelines for the design, procurement, installation and testing, and the administrative controls for fire protection systems are satisfied is the responsibility of the COL applicant.
9.5.1-1(f)	9.5-1	9.5.1.8, Tbl. 9.5.1-1	Inspection and maintenance of fire doors, access to keys for the fire brigade and the marking of exit routes is the responsibility of the COL applicant.

FSER Item	DCD Table 1.8-2	DCD Section	Description
9.5.1-1(g)	9.5-1	9.5.1.8, Tbl. 9.5.1-1	The collection and sampling of water drainage from areas that may contain radioactivity is the responsibility of the COL applicant.
9.5.1-1(h)	9.5-1	9.5.1.8, Tbl. 9.5.1-1	The control of the use of compressed gases inside structures is the responsibility of the COL applicant.
9.5.1-1(i)	9.5-1	9.5.1.8, Tbl. 9.5.1-1	Portable radio communication for use by the plant fire brigade is the responsibility of the COL applicant.
9.5.1-1(j)	9.5-1	9.5.1.8, Tbl. 9.5.1-1	Fire protection inside containment during refueling and maintenance is the responsibility of the COL applicant.
9.5.1-1(k)	9.5-1	9.5.1.8, Tbl. 9.5.1-1	The control of combustible materials in the remote shutdown workstation is the responsibility of the COL applicant.
9.5.1-1(l)	9.5-1	9.5.1.8, Tbl. 9.5.1-1	Fire protection for cooling towers is the responsibility of the COL applicant.
9.5.1-1(m)	9.5-1	9.5.1.8, Tbl. 9.5.1-1	The proper storage of welding gas cylinders is the responsibility of the COL applicant.
9.5.1-1(n)	9.5-1	9.5.1.8, Tbl. 9.5.1-1	The proper storage of ion exchange resins is the responsibility of the COL applicant.
9.5.1-1(o)	9.5-1	9.5.1.8, Tbl. 9.5.1-1	The proper storage of hazardous chemicals is the responsibility of the COL applicant.
9.5.1-2	9.5-2	9.5.1.8	The revision of the fire hazard analysis to reflect the actual plant configuration is the responsibility of the COL applicant.
9.5.1-3	9.5-4	9.5.1.8	The COL applicant is responsible for ensuring that any deviations from the applicable NFPA codes and standards in addition to those specified in the SSAR are incorporated in to the final safety analysis report with appropriate technical justification.

(4) Surveillance of Hafnium Control Rods (Section 4.2.3.1(10), SER and SSER #2)

CALLAWAY 50-483 License Condition 2.C.

UE shall perform a visual inspection of a sample of hafnium control rods during one of the first five refueling outages. A summary of the results of these inspections shall be submitted to the NRC.

(5) Fire Protection (Section 9.5.1.7, SER and Section 9.5.1.8, SSER #3)

(a) Within 60 days of acquisition of the 100% power data for thermal and dynamic testing, UE shall have operable the Halon systems in the north electrical penetration room (fire area A-18).

(b) Prior to restart following the first extended outage of known duration greater than two weeks occurring after February 15, 1985 or prior to restart following the first refueling outage which ever occurs first, UE shall have completed the installation of the five new isolation switches and modification to the four existing isolation switches identified in the August 23, 1984 SNUPPS letter.

(c) **The licensee shall implement and maintain in effect all provisions of the approved fire protection program as described in the SNUPPS Final Safety Analysis Report for the facility through Revision 15, the Callaway site addendum through Revision 8, and as approved in the SER through Supplement 4, subject to provision d below.**

(d) **The licensee may make changes to the approved fire protection program without prior approval of the Commission only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.**

Amdt. # 30, 1-13-88

~~(e) The licensee may make changes to features of the approved fire protection program which do not decrease the level of fire protection without prior Commission approval after such features have been installed as approved, provided such changes do not otherwise involve a change in a license condition or technical specification or result in an unreviewed safety question (see 10 CFR 50.59). However, the licensee shall maintain, in an auditable form, a current record of all such changes including an analysis of the effects of the change on the fire protection program and shall make~~

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~~such records available to NRC inspectors upon request. All changes to the approved program made without prior Commission approval shall be reported to the Director of the Office of Nuclear Reactor Regulation, together with supporting analyses, on an annual basis.~~

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(6) Qualification of Personnel (Section 13.1.2, SSER #3, Section 18, SSER #1)

(a) UE shall have on each shift operators who meet the requirements described in Attachment 2.

(b) UE shall have a senior individual with previous operating experience on a commerical PWR assigned to assist the Plant Manager as an advisor during the startup test program and for one year following full power operation.

(7) NUREG-0737 Conditions (Section 22, SER)

UE shall complete the following conditions to the satisfaction of the NRC. These conditions reference the appropriate items in Section 22.2, "TMI Action Plan Requirements for Applicants for Operating Licenses," in the Safety Evaluation Report and Supplements 1, 2, 3 and 4 NUREG-0830.

(a) Detailed Control Room Design Review (I.D.1, SSER #4)

Prior to May 1, 1985, UE shall submit for review and approval by the NRC staff, the results of the function and task analysis. For those Human Engineering Discrepancies (HEDs) identified by this analysis that require correction, the submittal shall include the proposed correction and implementation schedule; and for those HEDs for which no planned correction is proposed, a basis for that determination shall be documented.

(b) Emergency Response Capabilities (Generic Letter 82-33, Supplement 1 to NUREG-0737)

Prior to restart following the first refueling outage, UE shall have a fully functional Technical Support Center and Emergency Operations Facility and a fully operable Emergency Response Facilities Information System (ERFIS).